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CALLS FOR NEW NATIONAL PHARMACOLOGY BASED ON PRINCIPLES OF PAVLOV'S PHYSIOLOGY

In the current discussion of Speranskiy's theory, pharmacological and toxicological aspects have not been adequately emphasized. Classical pharmacology is obviously out of date, and its postulates to some extent interfere with a correct understanding of the action of pharmaceuticals and poisons. Soviet pharmacologists have every opportunity to dissociate themselves from the olad and to direct pharmacology into new channels by establishing a firm and genuine connection with national biology, physiology, and therapy, especially as far as theory is concerned.

What is the situation in contemporary pharmacology? First, considerable attention is being paid to the chemical constitution of active substances. In all standard manuals of pharmacology, the introduction, distribution, and elimination of the substance are treated elaborately, and cardinal importance is attached to resorption by the blood as determining action distant for the site of application. The existence of a highly developed nerve receptor system in the blood vessels and elsewhere along the path of a pharmacologically active agent being carried to some point distant from the site of application is usually overlooked. Active substances do not affect all organs and tissues, but only some of them. This, allegedly, is due to specific affinity for some kind of cells or some individual organs (tropism). It follows from this that the difference between local and general action is only one of degree, i.e., different numbers of cells and organs are affected. Chemotherapy is based on the same principle of specific affinity for microorganisms. In other words, the organism is not being regarded as a whole, but as a conglomeration of autonomous cells, even if these cells form organs. These theories are reflected in the current classification of pharmacologically active substances either according to their chemical properties or according to predominant action on some organ or tissue. Any additional talk about the reaction of the organism as a whole and its superimposed endocrine, constitutional, and other effects does not change the situation but serves only to conceal the actual state of affairs.

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This cleft between pharmacology and the principles of Pavlov's physicology is obviously due to the fact that many Soviet investigators still draw a dividing line between physiological and pathological processes. A. D. Speranskiy, who follows Pavlov, attaches great importance to sensory nerve endings which are capable of receiving a great variety of sub-threshold /literally "inadequate"/ in the original irritations from various sources, including those produced by chemicals. These irritations are then transmitted along the nervous system and find their expression peripherally as a "specific" affliction of some organ or tissue. The irritations referred to above determine the course of the pathological process, the external agent only supplying the first impulse. Much work on nerve reception has been done by A. D. Speranskiy and his collaborators during the past few years. It could be shown by A. Ya. Alymov, F. G Dubinin, B. Ya. Ostryy, and others that the introduction of an irritant into spots which are equivalent as far as the possibility of resorption into the blood and subsequent transmission by the circulation of the blood are concerned, but differ in regard to innervation, leads to entirely different effects with respect to the magnitude of the action. The author has herself observed a sharp difference between the action of certain agents introduced into the same vein. The action seemed to weaken as the site of application approached the right side of the heart. If one considers the speed of blood circulation, one must assume that the conditions determining the process were established instantaneously. While the effect cannot be explained by a resorptive mechanism, action through the nervous system furnishes a plausible explanation, particularly as far as rapidity of reception and transformation of the initial irritation are concerned.

All this shows how strongly pharmacology is detached from related disciplines and how inadequately its concepts reflect the essential nature of actually encountered processes. A review of these concepts on the basis of Pavlov's physiology will help Soviet pharmacologists to create a new national pharmacology which is free of outlived bourgeois aspects. -- N. Speranskaya, Scientific Collaborator, Institute of General and Experimental Pathology, Academy of Medical Sciences USSR.

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